Submission to Productivity Commission Radiocommunications Inquiry

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Section 1 The Big Picture: How Not to Think About Spectrum Allocation

Much of the confusion around radio spectrum management stems from the prevalence of a convenient but inaccurate analogy equating spectrum to property. In reality, the spectrum is nothing like land or other tangible and irreducibly divisible types of resource. Multiple users can use the same part of the airwaves at the same time, in the same location. For example, Australians every day use cordless telephones, garage door openers and WiFi networks (also known as 80211b local area networks) in the same part of the spectrum. **They share spectrum very effectively because there are good rules in place**: A sort of "spectrum etiquette" that ensures that no one person's use impinges on any one else. They could not do this with a resource like a natural gas reserve or a block of land.

Good spectrum management is really about flows and traffic, not stocks.[1] A highway may need to be governed by road rules and toll booths, but trying to sell off specific lanes or sections of the road would be ridiculous. **Imagine how inefficient it would be if freight companies were sold the right to exclusively use specific lanes on the Hume Highway.** Yet this is exactly what Australian authorities continue to do with the airwaves.

Technology breakthroughs mean that the ACA's longstanding spectrum subdivision scheme based on discrete channels and guard bands may soon prove **as inefficient as requiring that land be subdivided using only circular plots**. Recent advances in ultra-wideband (UWB) and spread spectrum technologies (also called software-defined radio)

mean an open access, "commons" management approach to governing the airwaves is likely to be more efficient for many parts of the radio spectrum.

How would this open access regime would work in practice? There is no definitive answer to this question. One might have asked a 19th century government regulator which rules should be in place for the 21st Century highway system and he would probably not been able to offer very constructive suggestions. The best rules come through the experience of real world situations with good, close monitoring and consultation with users. The important step is to create the environment so that experimentation and innovation can occur. Of the proposals that have been advanced in recent years, the open access model outlined by Eli Noam of Columbia University has been the most compelling.[2] Extensive testing and refining of the Noam model would certainly be required. Some engineers believe it will never be technologically viable, but the core principles are sound.

KEY POINTS:

- Given the rapid advance of technological progress, **we cannot presume to know the optimal way to organize future access to the airwaves**. Creating long-term property rights to prime parts of the spectrum by auctioning off spectrum licenses with 10- and 15-year terms is a mistake. Retaining public control of the spectrum will ensure that in the long term governments, not specific spectrum incumbents, will determine how the spectrum is used.
- The model which delivers the greatest benefits to all Australians will probably not be one where a single spectrum "owner" or licensee rents out access to the highest bidder. **Open platforms for communications and media (eg - the Internet) generate greater returns to the community as a whole than closed, proprietary platforms (eg – television).** These returns are hard to measure but the intangible benefits that flow from knowledge exchange and innovation are crucial to our future prosperity.
- In the short term – while we wait for the technology to evolve – the optimal approach must be an allocation system based on the market mechanism (see section 2 for details).

Section 2: The Short Term: How Best to Allocate and Charge for Spectrum

Keeping in mind our uncertainties about the future progress of radio technologies, the best short term solution to spectrum management is to establish a system for pricing spectrum that **does not lock us into a pre-determined set of technologies or a fixed system of ownership.**

Ideally, some version of a royalties-based or leasing model for spectrum users should be implemented. In general terms, users would bid for the rights to hold licenses for spectrum use which would:

1) be fully tradeable and easily transferable;
2) carry with them the obligation to pay a royalty or lease payment (perhaps monthly or quarterly) which would be set by the regulator, either through a bidding process or through after industry consultation;
3) have a short (perhaps 3 month) notice period after which the incumbent user must vacate the spectrum.

Section 3 Weaknesses in the recommendations in the Productivity Commission's Draft Report

3.1 The Primacy of Economic Efficiency Measures and the end of Public Interest tests

These two propositions from the report are flawed:

- "Efficiency… refers to maximizing the relationship between the use of scarce resources (which include spectrum) and the value of total output of goods and services across the economy."
- The Draft Report recommends ending of the "public interest" tests for newly issued spectrum licenses.

I believe that these statements from the Draft Report simply do not take adequate account of the intangible benefits that an open communications infrastructure can bring to an economy. Lawrence Lessig of Stanford University has forcefully communicated in two recent books – "Code" and "The Future of Ideas" – the economic value of the innovation that flows from the free exchange of ideas and information.

In a knowledge-based economy, communications infrastructure provides a bedrock for so much other economic activity. It should not be regarded as simply an industry in itself.

Radio spectrum is perhaps the most valuable public asset of our time. It's worth as a platform for the delivery of voice, video and data transmissions is in the trillions of dollars. Lessig explains in intricate detail how a communications platform which is governed to promote openness and access will generate substantially more innovation than a platform which proprietary and closed. Australia's economic future depends on our capacity to generate innovation in all aspects of our economy.

3.2 Broadcasting Licenses

In broad terms, I support the findings in the Draft Report. But, I would add the following:

- The Arrival of the PVR in Australia: Why Within 3 Years Commercial TV Will Be In Dire Financial Trouble

The first point of consideration when reviewing the television broadcasting industry and its use of spectrum, must be the strong likelihood that by 2005 the current advertising-driven business model of Channels 9, 10 and 7 will be untenable.

Low-cost consumer products such as Tivo www.tivo.com and Replay TV www.replaytv.com (generically known as 'personal video recorders' or PVRs) are already being sold in their hundreds of thousands in the US and in Europe.[3] These devices – which are essentially a computer hard disk and search engine for televisions – make it very simple for consumers to instantly skip advertisements broadcast on live TV. Surveys of PVR users show that almost all use the "ad skip" feature and most begin watching TV outside "prime time" viewing hours. The result is the captive audience which broadcasters sell to advertisers is being undermined by PVRs at a very rapid rate. Significant impacts on the revenue streams of television stations are forecast in the next 12 to 18 months in the US.

The PVR's imminent arrival means that we can't expect the 3 commercial stations to continue on operating successfully into the next decade, **even if that was the outcome we favoured.** That option is not available.

So, what is the alternative?

An open platform for free-to-air broadcast television is the ideal policy goal:

- Content providers – sports leagues and competitions, TV drama producers, movie studios, comedy and theatre venues, music video producers etc – need a means of selling their content to consumers.
- Australian consumers need the greatest choice of content delivered to their television screens. Ideally every Australian should be able to watch what they want, when they want to watch it.

Television broadcasters are really just infrastructure owners. They own the right to broadcast television across the nation and they own the broadcast technology to physically send out those signals.

Protecting the economic viability of the infrastructure owners (ie- commercial TV broadcasters) is not an appropriate goal of spectrum policy. Rather, **the goal should be ensuring that the infrastructure works best for Australian consumers.** How can the infrastructure be managed to ensure that they are offered a wide selection of content from content providers – sport, movies etc.? How can the platform be as "open" as possible?

Given that the PVR will undermine the advertiser-driven business model of commercial broadcasters, the best policy to adopt to reach the above goals is one of "open access".

The more conduits there are to consumers and the easier it is for content providers to reach consumers, the greater the general welfare gains.

We can't predict the best future business model for commercial TV broadcast licensees but we can create space for new entrants and incumbents to experiment with new business models and innovate. This experimentation and innovation will eventually generate positive outcomes for consumers and content providers. The first steps must however create a spacious, level playing field in broadcasting for experimentation.

Recommendation for the Short Term: Issue more commercial television licenses

There is a lot of dormant infrastructure capacity in TV broadcasting in Australia. Every American television market has over 40 TV licensees operating. We have roughly same amount of spectrum available yet we only have 3 commercial stations and up to 3 public broadcasters (ABC, SBS and community stations) in our markets. As well, new digital transmission technologies mean that approximately 6 channels of high picture quality can be delivered using the same slice of spectrum now taken up by a single channel (like 9, 10 or 7).

Therefore, it is technologically possible to introduce new licenses, there is enough spectrum for new licensees, and the cost of running a station is really so small as to be irrelevant. Community broadcasters like Channel 31 in Melbourne are run on a shoestring.

Would it be commercially viable? Say that we introduced 3 new commercial TV licenses. The sorts of patterns we've seen in the Australian radio industry when new entrants have entered the market would likely occur. Incumbents will be forced to change strategy and some may go out of business. New entrants may get their strategy wrong and go bankrupt themselves. In the end the big winners are consumers. They get new content and better quality content. People really don't care about the commercial viability of their broadcaster. They watch and listen to what they like.

ENDNOTES

[1] Interview with Eli Noam, *Wired*, October 1997
http://www.wired.com/wired/archive/5.10/cyberspace_pr.html
[2] Noam, E. "Taking the Next Step Beyond Spectrum Auctions:
Open Spectrum Access", October 10, 1995 http://www.columbia.edu/dlc/wp/citi/citinoam21.html
[3] Watts, T. "The Prime Time Killer on TV", *BRW*, Feb 2, 2001